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10/613,771	07/03/2003	Yasushi Kasajima	9319S-000512	7132

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HARNESS, DICKEY & PIERCE, P.L.C.
P.O. BOX 828
BLOOMFIELD HILLS, MI 48303

EXAMINER

CHEN, WEN YING PATTY

ART UNIT	PAPER NUMBER
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2871

DATE MAILED: 05/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/613,771

Applicant(s)

KASAJIMA ET AL.

Examiner

Wen-Ying P. Chen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 February 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) 11-13, 17 and 31-33 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 8 is/are allowed.
- 6) ☐ Claim(s) 1-7, 9-10, 14-16, 18-27, 29, 30 and 34 is/are rejected.
- 7) ☒ Claim(s) 28 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>9/12/05</u> | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Election/Restrictions

Applicant's election with traverse of Species 1 and Sub-Species 1 in the reply filed on Feb. 16, 2006 is acknowledged. The traversal is on the ground(s) that all species are sufficiently related to each other that an undue burden would not be placed upon the Examiner. This is not found persuasive because although the species are related in subject matter, however, the species present various embodiments, which are patentably distinct from one another, thus different search is required for the different embodiments.

The requirement is still deemed proper and is therefore made FINAL.

Claims 1-34 are pending in the current application, but claims 11-13, 17 and 31-33 are withdrawn from consideration.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

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2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-3, 14 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishino et al. (JP 2002-182199) in view of Sekiguchi (US 2002/0054261).

With respect to claim 1: Nishino et al. disclose in Figure 1 a display device comprising:
a display unit for forming a predetermined display mode; and
a display switching unit overlapping the display unit at least in one portion, wherein the display switching unit includes first polarization component (element 14) selecting means, polarized-light transmitting axis changing means (element 3), and second polarization component selecting means (element 4) sequentially disposed from the display unit toward an observation side,

the first polarization component selecting means transmits a first polarization component and reflects a second polarization component having a polarization axis intersecting with a polarization axis of the first polarization component (Paragraph 0004),

the polarized-light transmitting axis changing means is switchable between a state of transmitting light after changing the first polarization component into the second polarization component and a state of transmitting light without substantially changing the polarization axis of the incident light (Paragraph 0003),

the second polarization component selecting means transmits one of the first polarization component and the second polarization component and absorbs or reflects the other polarization component, and

the display unit emits the first polarization component for forming the display mode.

Nishino et al. fail to specifically disclose that the display unit and the display switching unit are optically adhered to each other.

However, Sekiguchi discloses in Figure 4 a display device wherein the display unit and the display switching unit are optically adhered to each other.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to construct a display device as taught by Nishino et al. wherein the display unit and the display switching unit are optically adhered to each other as taught by Sekiguchi, since Sekiguchi teaches that by optically adhering the display unit and the display switching unit together thus result in a single display device usable together (Abstract).

As to claim 2: Sekiguchi further discloses in Figure 4 that the display unit and the display switching unit are optically adhered to each other by adhesive (element 44).

As to claim 3: Sekiguchi further discloses in Paragraphs 0095-0097 that the refraction index of the adhesive layer is within a range of 1.30 to 1.50.

As to claim 14: Nishino et al. disclose all of the limitations set forth in claim 1 but fail to specifically disclose that the second polarization component selecting means is absorptive polarization selecting means for transmitting the one of the polarization components and absorbing the other polarization component.

However, Sekiguchi discloses in Paragraph 0104 the use of absorptive polarization selecting means as the second polarization component selecting means (Figure 4, element 45).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to construct a display device as taught by Nishino et al. wherein the second polarization component selecting means is absorptive polarization selecting means for transmitting the one of the polarization components and absorbing the other polarization component as taught by Sekiguchi, since Sekiguchi teaches that excellent display quality can be ensured and excellent contrast can be effected (Paragraph 0105).

As to claim 34: Nishino et al. disclose all of the limitations set forth in claim 1 but fail to specifically disclose that the display device comprises a display driving means and a switch driving means.

However, Sekiguchi discloses in Figure 3 and Paragraphs 0081-0083 a display driving means for controlling the display unit and a switch driving means for controlling the display switching means.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to construct a display device as taught by Nishino et al. wherein the display device comprises a display driving means and a switch driving means as taught by Sekiguchi, since Sekiguchi teaches that display signals can be transmitted to the display unit via the display

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driving means and switching signals can be transmitted to the display switching means via the switch driving means (Paragraph 0081-0083).

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nishino et al. (JP 2002-182199) and Sekiguchi (US 2002/0054261) in view of Hedrick (US 2003/0160740).

Nishino et al. and Sekiguchi disclose all of the limitations set forth in the previous claims, but both fail to disclose that the adhesive is a gel material.

However, Hedrick teaches in Paragraph 0016 the use of adhesive layer made of gel material.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to construct a display device as taught by Nishino et al. and Sekiguchi wherein the adhesive layer made of gel material as taught by Hedrick, since Hedrick teaches that the gel adhesive helps to prevent undesirable seepage (Paragraph 0016).

Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishino et al. (JP 2002-182199) in view of Ogasawara et al. (US 5592314).

With respect to claim 5: Nishino et al. disclose in Figure 1 a display device comprising:

a display unit for forming a predetermined display mode; and

a display switching unit overlapping the display unit at least in one portion, wherein the display switching unit includes first polarization component (element 14) selecting means, polarized-light transmitting axis changing means (element 3), and second polarization

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component selecting means (element 4) sequentially disposed from the display unit toward an observation side,

the first polarization component selecting means transmits a first polarization component and reflects a second polarization component having a polarization axis intersecting with a polarization axis of the first polarization component (Paragraph 0004),

the polarized-light transmitting axis changing means is switchable between a state of transmitting light after changing the first polarization component into the second polarization component and a state of transmitting light without substantially changing the polarization axis of the incident light (Paragraph 0003),

the second polarization component selecting means transmits one of the first polarization component and the second polarization component and absorbs or reflects the other polarization component, and

the display unit emits the first polarization component for forming the display mode.

Nishino et al. fail to specifically disclose that an anti-reflection coating is formed on both sides of the display switching unit.

However, Ogasawara et al. disclose in Figure 3A the use of anti-reflection coating (element 12) on both sides of the display switching unit.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to construct a display device as taught by Nishino et al. wherein an anti-reflection coating is formed on both sides of the display switching unit as taught by Ogasawara et al., since anti-reflection coatings help to prevent glare thus result in clearer display images.

As to claim 6: Ogasawara et al. further disclose in Figure 3A that the anti-reflection coating (element 22) is formed on a surface of the display unit on a side of the display switching unit.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nishino et al. (JP 2002-182199) in view of Nonomura et al. (US 4335936).

Nishino et al. disclose in Figure 1 a display device comprising:

a display unit for forming a predetermined display mode; and

a display switching unit overlapping the display unit at least in one portion, wherein the display switching unit includes first polarization component (element 14) selecting means, polarized-light transmitting axis changing means (element 3), and second polarization component selecting means (element 4) sequentially disposed from the display unit toward an observation side,

the first polarization component selecting means transmits a first polarization component and reflects a second polarization component having a polarization axis intersecting with a polarization axis of the first polarization component (Paragraph 0004),

the polarized-light transmitting axis changing means is switchable between a state of transmitting light after changing the first polarization component into the second polarization component and a state of transmitting light without substantially changing the polarization axis of the incident light (Paragraph 0003),

the second polarization component selecting means transmits one of the first polarization component and the second polarization component and absorbs or reflects the other polarization component, and

the display unit emits the first polarization component for forming the display mode.

Nishino et al. fail to specifically disclose that the display switching unit is provided with a whole pixel region, which includes a single pixel arranged on an entire face, and a pixel-arranged region, which includes a plurality of pixels, each pixel having a predetermined shape smaller than the whole pixel region.

However, Nonomura et al. disclose in Figure 9 a display device wherein the display switching unit is provided with a whole pixel region (element A'), which includes a single pixel (element 20) arranged on an entire face, and a pixel-arranged region (element B'), which includes a plurality of pixels (elements 16a-16g), each pixel having a predetermined shape smaller than the whole pixel region.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to construct a display device as taught by Nishino et al. wherein the display switching unit is provided with a whole pixel region, which includes a single pixel arranged on an entire face, and a pixel-arranged region, which includes a plurality of pixels, each pixel having a predetermined shape smaller than the whole pixel region as taught by Nonomura et al., since Nonomura et al. teach that by forming the whole pixel region and the pixel-arranged region in a display region helps to improve the contrast ratio in the pixel-arranged region (Column 5, lines 4-13).

Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishino et al. (JP 2002-182199) in view of Tsuji (US 2003/0128316).

With respect to claim 9: Nishino et al. disclose in Figure 1 a display device comprising:
a display unit for forming a predetermined display mode; and
a display switching unit overlapping the display unit at least in one portion, wherein the display switching unit includes first polarization component (element 14) selecting means, polarized-light transmitting axis changing means (element 3), and second polarization component selecting means (element 4) sequentially disposed from the display unit toward an observation side,

the first polarization component selecting means transmits a first polarization component and reflects a second polarization component having a polarization axis intersecting with a polarization axis of the first polarization component (Paragraph 0004),

the polarized-light transmitting axis changing means is switchable between a state of transmitting light after changing the first polarization component into the second polarization component and a state of transmitting light without substantially changing the polarization axis of the incident light (Paragraph 0003),

the second polarization component selecting means transmits one of the first polarization component and the second polarization component and absorbs or reflects the other polarization component, and

the display unit emits the first polarization component for forming the display mode.

Nishino et al. fail to specifically disclose that the display unit is provided with a region not overlapping with the display switching unit.

However, Tsuji teaches in Figure 3 and Paragraphs 0006-0007 of forming a two panel display device, such that one panel is smaller than the other, thus having a region of one of the panels not overlapping with the other.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to construct a display device as taught by Nishino et al. wherein the display unit can be made larger than the display switching unit, thus provide with a region not overlapping with the display switching unit as taught by Tsuji, since Tsuji teaches that the size of the display panels can be adjusted according to the amount of information necessary to be displayed (Paragraphs 0006-0007).

With respect to claim 10: Nishino et al. disclose in Figure 1 a display device comprising:
a display unit for forming a predetermined display mode; and
a display switching unit overlapping the display unit at least in one portion, wherein the display switching unit includes first polarization component (element 14) selecting means, polarized-light transmitting axis changing means (element 3), and second polarization component selecting means (element 4) sequentially disposed from the display unit toward an observation side,

the first polarization component selecting means transmits a first polarization component and reflects a second polarization component having a polarization axis intersecting with a polarization axis of the first polarization component (Paragraph 0004),

the polarized-light transmitting axis changing means is switchable between a state of transmitting light after changing the first polarization component into the second polarization

component and a state of transmitting light without substantially changing the polarization axis of the incident light (Paragraph 0003),

the second polarization component selecting means transmits one of the first polarization component and the second polarization component and absorbs or reflects the other polarization component, and

the display unit emits the first polarization component for forming the display mode.

Nishino et al. fail to specifically disclose that the display switching unit is provided with a region not overlapping with the display unit two dimensionally, where a plurality of pixels of a predetermined shape are arranged.

However, Tsuji teaches in Figure 3 and Paragraphs 0006-0007 of forming a two panel display device, such that one panel is smaller than the other, thus having a region of one of the panels not overlapping with the other, and that a plurality of pixels of a predetermined shape are arranged (Paragraph 0065, wherein the display panels comprise of a plurality of pixels of a predetermined shape).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to construct a display device as taught by Nishino et al. wherein the display switching unit can be made larger than the display unit, thus provide with a region not overlapping with the display unit as taught by Tsuji, since Tsuji teaches that the size of the display panels can be adjusted according to the amount of information necessary to be displayed (Paragraphs 0006-0007).

Claims 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishino et al. (JP 2002-182199) in view of Kato et al. (US 5136406).

With respect to claim 15: Nishino et al. disclose in Figure 1 a display device comprising:
a display unit for forming a predetermined display mode; and
a display switching unit overlapping the display unit at least in one portion, wherein the display switching unit includes first polarization component (element 14) selecting means, polarized-light transmitting axis changing means (element 3), and second polarization component selecting means (element 4) sequentially disposed from the display unit toward an observation side,

the first polarization component selecting means transmits a first polarization component and reflects a second polarization component having a polarization axis intersecting with a polarization axis of the first polarization component (Paragraph 0004),

the polarized-light transmitting axis changing means is switchable between a state of transmitting light after changing the first polarization component into the second polarization component and a state of transmitting light without substantially changing the polarization axis of the incident light (Paragraph 0003),

the second polarization component selecting means transmits one of the first polarization component and the second polarization component and absorbs or reflects the other polarization component, and

the display unit emits the first polarization component for forming the display mode, and

the display unit includes an illuminating device (element 18) disposed on the side of the display switching unit, and a reflective display device (element 17) disposed on the opposite side of the illuminating device and away from the display switching unit,

the illuminating device emits light toward the reflective display device and transmits light incident from the reflective display device.

Nishino et al. fail to specifically disclose that the polarized-light transmitting axis changing means includes a TN-type liquid crystal layer and a voltage application means for applying a predetermined electric field to the TN-type liquid crystal layer in a thickness direction, and the TN-type liquid crystal layer has $\Delta n \cdot d$ within a range of $0.7\mu\text{m}$ to $1.7\mu\text{m}$.

However, Kato et al. disclose in Column 3 lines 24-37 a liquid crystal display device comprising a TN-type liquid crystal layer and a voltage application means for applying a predetermined electric field to the TN-type liquid crystal layer in a thickness direction, and the TN-type liquid crystal layer has $\Delta n \cdot d$ within a range of $0.7\mu\text{m}$ to $1.7\mu\text{m}$ (wherein $\Delta n \cdot d$ is in a range of $0.7\mu\text{m}$ to $2.0\mu\text{m}$ having overlapping of ranges, which renders the claim limitation obvious over the prior art; *see MPEP 2144.05 [R-3] Obviousness of Ranges*).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to construct a display device as taught by Nishino et al. wherein the polarized-light transmitting axis changing means includes a TN-type liquid crystal layer and a voltage application means for applying a predetermined electric field to the TN-type liquid crystal layer in a thickness direction, and the TN-type liquid crystal layer has $\Delta n \cdot d$ within a range of $0.7\mu\text{m}$ to $1.7\mu\text{m}$ as taught by Kato et al., since Kato et al. teach that liquid crystal display

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having such configuration provides sufficient viewing angle which does not cause the negative/positive inversion of a display can be obtained (Column 3, lines 24-28).

As to claim 16: Kato et al. further disclose in Column 3 lines 34-37 that the TN-type liquid crystal layer has $\Delta n \cdot d$ within a range of $0.9\mu\text{m}$ to $1.3\mu\text{m}$ (wherein $\Delta n \cdot d$ is in a range of $0.8\mu\text{m}$ to $1.5\mu\text{m}$ having overlapping of ranges, which renders the claim limitation obvious over the prior art; *see MPEP 2144.05 [R-3] Obviousness of Ranges*).

Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nishino et al. (JP 2002-182199) in view of Yamahara et al. (US 6163354).

Nishino et al. disclose in Figure 1 a display device comprising:

a display unit for forming a predetermined display mode; and

a display switching unit overlapping the display unit at least in one portion, wherein the display switching unit includes first polarization component (element 14) selecting means, polarized-light transmitting axis changing means (element 3), and second polarization component selecting means (element 4) sequentially disposed from the display unit toward an observation side,

the first polarization component selecting means transmits a first polarization component and reflects a second polarization component having a polarization axis intersecting with a polarization axis of the first polarization component (Paragraph 0004),

the polarized-light transmitting axis changing means is switchable between a state of transmitting light after changing the first polarization component into the second polarization

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component and a state of transmitting light without substantially changing the polarization axis of the incident light (Paragraph 0003),

the second polarization component selecting means transmits one of the first polarization component and the second polarization component and absorbs or reflects the other polarization component, and

the display unit emits the first polarization component for forming the display mode, and

the display unit includes an illuminating device (element 18) disposed on the side of the display switching unit, and a reflective display device (element 17) disposed on the opposite side of the illuminating device and away from the display switching unit,

the illuminating device emits light toward the reflective display device and transmits light incident from the reflective display device.

Nishino et al. fail to specifically disclose that a ratio of α_m and α_d of the polarized-light transmitting axis changing means is within the range of 0.9 to 1.1.

However, Yamahara et al. disclose in Column 8 lines 63-67 and Column 9 lines 1-22 a liquid crystal display device wherein a ratio of α_m and α_d of the display device is within the range of 0.9 to 1.1.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to construct a display device as taught by Nishino et al. wherein a ratio of α_m and α_d of the polarized-light transmitting axis changing means is within the range of 0.9 to 1.1 as taught by Yamahara et al., since Yamahara et al. teach that such condition of the display device helps to improve the coloration phenomenon (Column 9, lines 23-30).

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nishino et al. (JP 2002-182199) in view of Takase (JP 09-090357).

Nishino et al. disclose in Figure 1 a display device comprising:

a display unit for forming a predetermined display mode; and

a display switching unit overlapping the display unit at least in one portion, wherein the display switching unit includes first polarization component (element 14) selecting means, polarized-light transmitting axis changing means (element 3), and second polarization component selecting means (element 4) sequentially disposed from the display unit toward an observation side,

the first polarization component selecting means transmits a first polarization component and reflects a second polarization component having a polarization axis intersecting with a polarization axis of the first polarization component (Paragraph 0004),

the polarized-light transmitting axis changing means is switchable between a state of transmitting light after changing the first polarization component into the second polarization component and a state of transmitting light without substantially changing the polarization axis of the incident light (Paragraph 0003),

the second polarization component selecting means transmits one of the first polarization component and the second polarization component and absorbs or reflects the other polarization component, and

the display unit emits the first polarization component for forming the display mode, and

the display unit includes an illuminating device (element 18) disposed on the side of the display switching unit, and a reflective display device (element 17) disposed on the opposite side of the illuminating device and away from the display switching unit,

the illuminating device emits light toward the reflective display device and transmits light incident from the reflective display device.

Nishino et al. fail to specifically disclose that a variation amount of the anisotropic refraction index Δn_m in a visible light region of the polarized-light transmitting axis changing means is within $\pm 8\%$ in the range of -20°C to 60°C with respect to a temperature of 25°C .

However, Takase discloses in the Abstract a liquid crystal display device wherein the change of the anisotropic refraction index is set to vary at very small percentage with respect to each $^\circ\text{C}$ ($\leq 0.5\%/^\circ\text{C}$).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to construct a display device as taught by Nishino et al. wherein a variation amount of the anisotropic refraction index Δn_m is as small as possible as taught by Takase, since Takase teach that with smaller variations in the anisotropic refraction index with respect to the change in temperature helps in preventing an unequal display thus improves the display grade (Abstract).

Claims 20-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishino et al. (JP 2002-182199) and Kato et al. (US 5136406) in view of Sekiguchi (US 2002/0054261).

With respect to claim 20: Nishino et al. and Kato et al. disclose all of the limitations set forth in claim 15, but fail to specifically disclose that the second polarization component

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selecting means is absorptive polarization selecting means for transmitting the one of the polarization components and absorbing the other polarization component.

However, Sekiguchi discloses in Paragraph 0104 the use of absorptive polarization selecting means as the second polarization component selecting means (Figure 4, element 45).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to construct a display device as taught by Nishino et al. and Kato et al. wherein the second polarization component selecting means is absorptive polarization selecting means for transmitting the one of the polarization components and absorbing the other polarization component as taught by Sekiguchi, since Sekiguchi teaches that excellent display quality can be ensured and excellent contrast can be effected (Paragraph 0105).

As to claim 21: Nishino et al. and Kato et al. disclose all of the limitations set forth in claim 15, but fail to specifically disclose that the display unit and the display switching unit are optically adhered to each other.

However, Sekiguchi discloses in Figure 4 a display device wherein the display unit and the display switching unit are optically adhered to each other.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to construct a display device as taught by Nishino et al. and Kato et al. wherein the display unit and the display switching unit are optically adhered to each other as taught by Sekiguchi, since Sekiguchi teaches that by optically adhering the display unit and the display switching unit together thus result in a single display device usable together (Abstract).

As to claim 22: Sekiguchi further discloses in Figure 4 that the display unit and the display switching unit are optically adhered to each other by adhesive (element 44).

As to claim 23: Sekiguchi further discloses in Paragraphs 0095-0097 that the refraction index of the adhesive layer is within a range of 1.30 to 1.50.

Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nishino et al. (JP 2002-182199), Kato et al. (US 5136406) and Sekiguchi (US 2002/0054261) in view of Hedrick (US 2003/0160740).

Nishino et al., Kato et al. and Sekiguchi disclose all of the limitations set forth in the previous claims, but both fail to disclose that the adhesive is a gel material.

However, Hedrick teaches in Paragraph 0016 the use of adhesive layer made of gel material.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to construct a display device as taught by Nishino et al., Kato et al. and Sekiguchi wherein the adhesive layer made of gel material as taught by Hedrick, since Hedrick teaches that the gel adhesive helps to prevent undesirable seepage (Paragraph 0016).

Claims 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishino et al. (JP 2002-182199) and Kato et al. (US 5136406) in view of Ogasawara et al. (US 5592314).

With respect to claim 5: Nishino et al. and Kato et al. disclose all of the limitations set forth in claim 15, but both fail to specifically disclose that an anti-reflection coating is formed on both sides of the display switching unit.

However, Ogasawara et al. disclose in Figure 3A the use of anti-reflection coating (element 12) on both sides of the display switching unit.

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Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to construct a display device as taught by Nishino et al. and Kato et al. wherein an anti-reflection coating is formed on both sides of the display switching unit as taught by Ogasawara et al., since anti-reflection coatings help to prevent glare thus result in clearer display images.

As to claim 26: Ogasawara et al. further disclose in Figure 3A that the anti-reflection coating (element 22) is formed on a surface of the display unit on a side of the display switching unit.

Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nishino et al. (JP 2002-182199) and Kato et al. (US 5136406) in view of Nonomura et al. (US 4335936).

Nishino et al. and Kato et al. disclose all of the limitations set forth in claim 15, but both fail to specifically disclose that the display switching unit is provided with a whole pixel region, which includes a single pixel arranged on an entire face, and a pixel-arranged region, which includes a plurality of pixels, each pixel having a predetermined shape smaller than the whole pixel region.

However, Nonomura et al. disclose in Figure 9 a display device wherein the display switching unit is provided with a whole pixel region (element A'), which includes a single pixel (element 20) arranged on an entire face, and a pixel-arranged region (element B'), which includes a plurality of pixels (elements 16a-16g), each pixel having a predetermined shape smaller than the whole pixel region.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to construct a display device as taught by Nishino et al. and Kato et al. wherein the display switching unit is provided with a whole pixel region, which includes a single pixel arranged on an entire face, and a pixel-arranged region, which includes a plurality of pixels, each pixel having a predetermined shape smaller than the whole pixel region as taught by Nonomura et al., since Nonomura et al. teach that by forming the whole pixel region and the pixel-arranged region in a display region helps to improve the contrast ratio in the pixel-arranged region (Column 5, lines 4-13).

Claims 29 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishino et al. (JP 2002-182199) and Kato et al. (US 5136406) in view of Tsuji (US 2003/0128316).

With respect to claim 29: Nishino et al. and Kato et al. disclose all of the limitations set forth in claim 15, but both fail to specifically disclose that the display unit is provided with a region not overlapping with the display switching unit.

However, Tsuji teaches in Figure 3 and Paragraphs 0006-0007 of forming a two panel display device, such that one panel is smaller than the other, thus having a region of one of the panels not overlapping with the other.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to construct a display device as taught by Nishino et al. and Kato et al. wherein the display unit can be made larger than the display switching unit, thus provide with a region not overlapping with the display switching unit as taught by Tsuji, since Tsuji teaches that

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the size of the display panels can be adjusted according to the amount of information necessary to be displayed (Paragraphs 0006-0007).

As to claim 30: Nishino et al. and Kato et al. disclose all of the limitations set forth in claim 15, but both fail to specifically disclose that the display switching unit is provided with a region not overlapping with the display unit two dimensionally, where a plurality of pixels of a predetermined shape are arranged.

However, Tsuji teaches in Figure 3 and Paragraphs 0006-0007 of forming a two panel display device, such that one panel is smaller than the other, thus having a region of one of the panels not overlapping with the other, and that a plurality of pixels of a predetermined shape are arranged (Paragraph 0065, wherein the display panels comprise of a plurality of pixels of a predetermined shape).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to construct a display device as taught by Nishino et al. and Kato et al. wherein the display switching unit can be made larger than the display unit, thus provide with a region not overlapping with the display unit as taught by Tsuji, since Tsuji teaches that the size of the display panels can be adjusted according to the amount of information necessary to be displayed (Paragraphs 0006-0007).

Allowable Subject Matter

Claim 8 is allowed.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 8: Nishino et al. disclose in Figure 1 a display device comprising:

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a display unit for forming a predetermined display mode; and

a display switching unit overlapping the display unit at least in one portion, wherein the display switching unit includes first polarization component (element 14) selecting means, polarized-light transmitting axis changing means (element 3), and second polarization component selecting means (element 4) sequentially disposed from the display unit toward an observation side,

the first polarization component selecting means transmits a first polarization component and reflects a second polarization component having a polarization axis intersecting with a polarization axis of the first polarization component (Paragraph 0004),

the polarized-light transmitting axis changing means is switchable between a state of transmitting light after changing the first polarization component into the second polarization component and a state of transmitting light without substantially changing the polarization axis of the incident light (Paragraph 0003),

the second polarization component selecting means transmits one of the first polarization component and the second polarization component and absorbs or reflects the other polarization component, and

the display unit emits the first polarization component for forming the display mode.

However, Nishino et al. fail to disclose that the display switching unit is provided with a region including the first polarization component selecting means and a region including a third polarization component selecting means for transmitting the first polarization component and for absorbing the second polarization component.

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Therefore, claim 8 is deemed non-obvious and inventive over the prior art and thus is allowed.

Claim 28 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claim 28: None of the prior art of record either alone in combination fairly teach or suggest a display device wherein the display switching unit is provided with a region including the first polarization component selecting means and a region including a third polarization component selecting means for transmitting the first polarization component and for absorbing the second polarization component.

Therefore, claim 28 is deemed non-obvious and inventive over the prior arts.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wen-Ying P. Chen whose telephone number is (571)272-8444. The examiner can normally be reached on 8:00-5:00 M-F.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H. Kim can be reached on (571)272-2293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Wen-Ying P Chen
Examiner
Art Unit 2871

WPC
4/29/06


ANDREW SCHECHTER
PRIMARY EXAMINER